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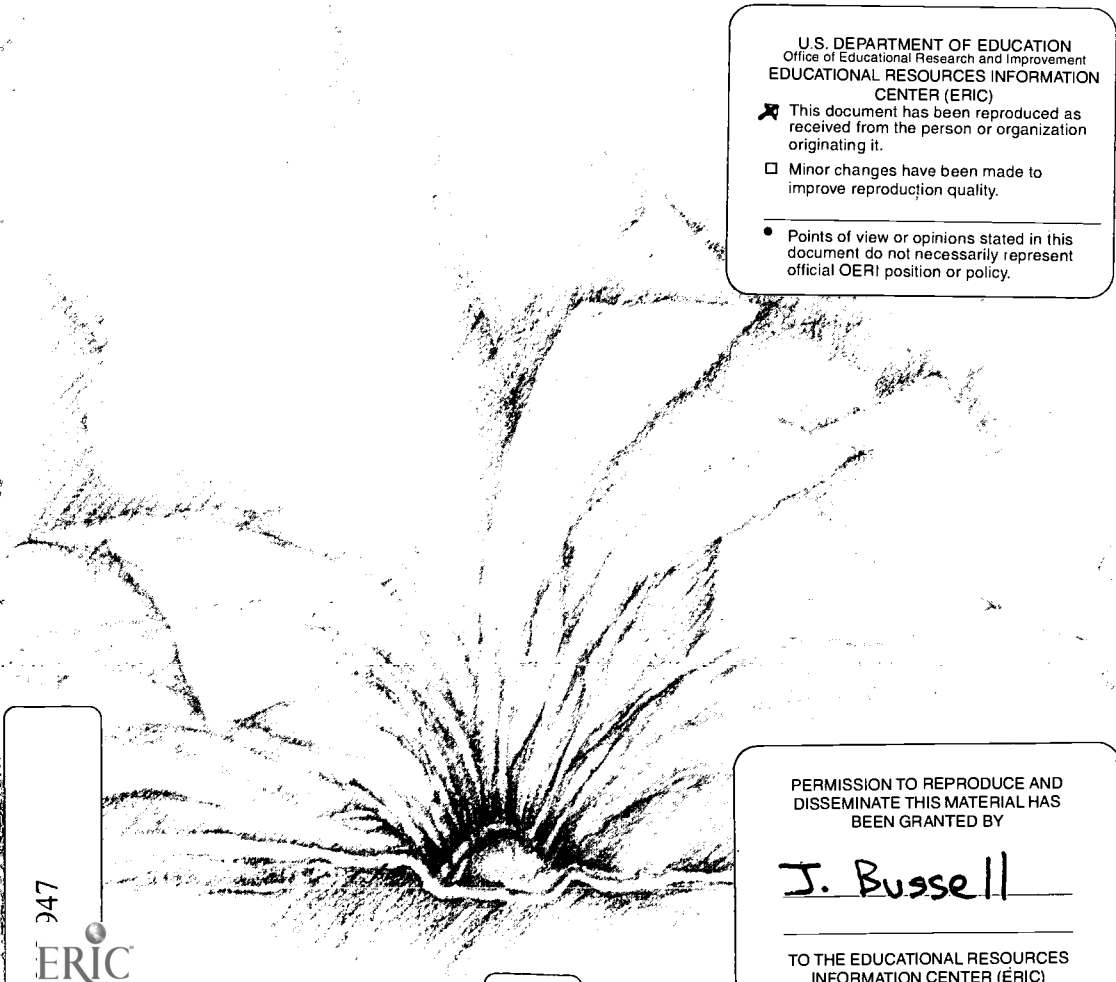
ABSTRACT

National attention is focused on early literacy, as several panels investigate and debate new directions in teaching children to read and write. This booklet reviews selected research recommended by the National Institute of Child Health and Human Development as a sound basis for designing literacy programs and particular intervention programs to help struggling readers. The booklet discusses how Reading Recovery epitomizes the 10 principles in literacy programs that work and states that the power of Reading Recovery lies in the integration of the 10 research-based components and the careful, sensitive application of these components during a Reading Recovery lesson. It presents a chart which summarizes these 10 principles that this research suggests are essential for intervention programs and lists supporting research, as well as components and teaching procedures characteristic of Reading Recovery, for each of the 10 principles. Contains 2 tables and 89 references. (NKA)

Reading Recovery:

An Analysis of a Research-Based Reading Intervention



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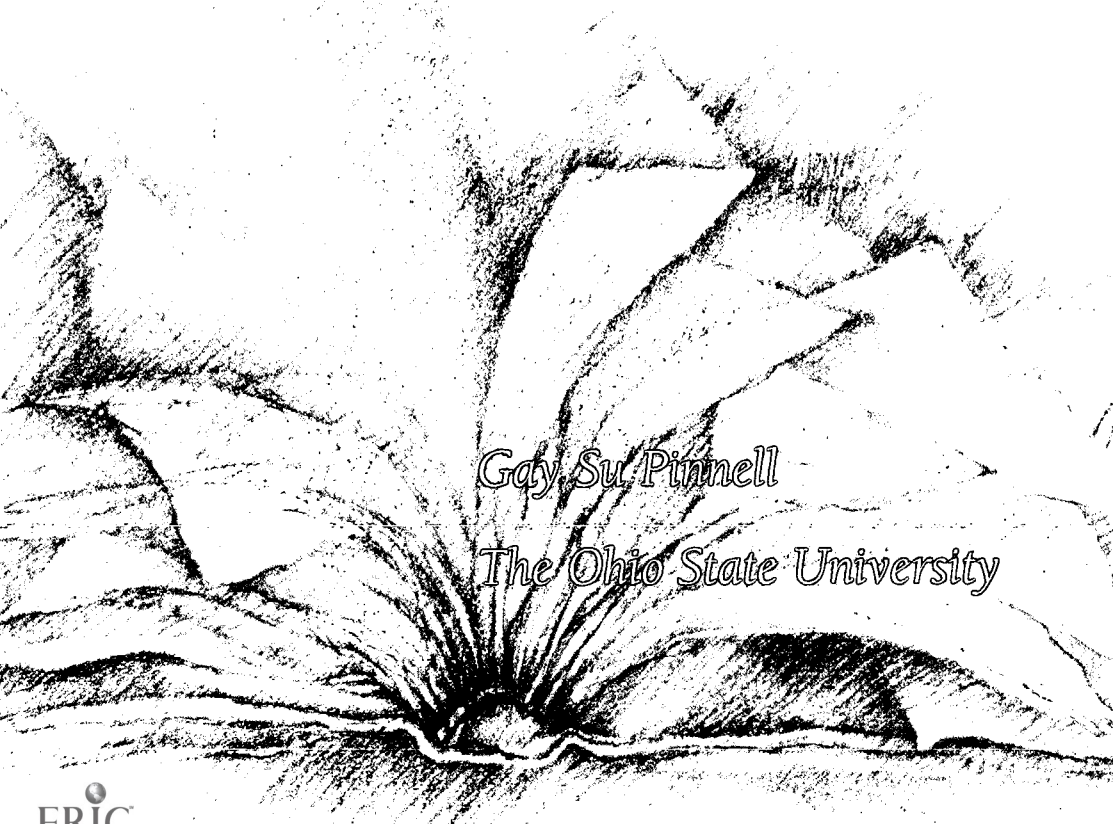

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Special Note to the Reader:

The principles described in this publication are applicable to the literacy acquisition process of bilingual students whose initial literacy instruction is delivered in Spanish. Research documents that children who achieve literacy success in Spanish during the first three years of literacy instruction in Spanish are likely to achieve literacy success when they transition to literacy instruction in English. Descubriendo La Lectura (Reading Recovery in Spanish) provides early intervention for children whose early literacy instruction is in Spanish. References to Reading Recovery throughout this publication include Descubriendo La Lectura.

Table of Contents

Executive Summary

National attention is focused on early literacy, as several panels investigate and debate new directions in teaching children to read and write. The National Research Council Committee on the Prevention of Reading Difficulties in Young Children has analyzed research on effective programs for students who are having difficulty learning to read and write. This research meets the criteria established by the National Institute of Child Health and Human Development (NICHD) for reliable, replicable research. Based on a survey of research that met the NICHD criteria, including the research presented in *The Prevention of Reading Difficulties in Young Children* (Snow, Burns, and Griffin, 1998), ten principles provide guidance for designing early intervention programs.

Research has demonstrated that young readers having difficulty are mostly of average intelligence, and they have problems resulting from multiple and differing causes. With appropriate intervention, almost all can learn to read, provided instruction is intensive and begins early. It is therefore important that reading interventions be multi-dimensional to meet the diverse needs of learners.

The Reading Recovery Lesson

- Reading familiar stories
- Reading a story that was read for the first time the day before
- Working with letters and/or words using magnetic letters
- Writing a story
- Assembling a cut-up story
- Introducing and reading a new book

The following discussion illustrates how Reading Recovery epitomizes the ten principles in literacy programs that work. These principles operate throughout a Reading Recovery lesson and apply differently for each child who is learning to read and write. The power of Reading Recovery lies in the integration of the ten research-based components and the careful, sensitive application of these components during a Reading Recovery lesson.

Principle 1: Phonological Awareness: Teach students to hear the sounds in words.

Developing the ability to hear the sounds in words is explicitly recognized in Reading Recovery. When children are evaluated for selection for Reading Recovery, a measure of ability to hear and record sounds in words is used. Performance on this measure of phonological awareness provides data that teachers use daily as they work individually with young children. Children selected for Reading Recovery are the lowest achievers in their first grade classes. Most, although not all, need instruction to develop phonological awareness.

Principle 2: Visual Perception of Letters: Teach students to perceive and identify letters of the alphabet.

Students are assessed for letter recognition as part of the battery of tests used for selection. Most children who enter Reading Recovery need to learn more about letters, have very limited knowledge, and need to learn how to look at print.

Because Reading Recovery teachers work one-to-one every day and keep daily records, it is possible to identify with precision what the child knows or is confused about. Teachers begin with the known set of letters and work for expansion. For children

with very low letter knowledge, teachers use movement and, if necessary, verbal and visual approaches to help the child remember the letter. Children write letters, construct their own alphabet book recording their knowledge to date, and work extensively with magnetic letters.

Program evaluation reports indicate that with very few exceptions, children who participate in the program can identify the 54 characters (upper and lower case letters of the alphabet and the print version of *a* and *g*) by the end of the 12- to 20-week program.

Principle 3: Word Recognition: Teach students to recognize words.

First-grade children who are having extreme difficulty in learning to read and write generally know very few if any words. These children are just learning to look at print and to identify a few letters and sounds. It is helpful to build a small but expanding repertoire of words that the child knows in detail and can recognize quickly. With that goal in mind, early in the program, the teacher works to extend knowledge of words by having children make words using magnetic letters, trace words, and write words. Word cards may also be used. The words that the teacher selects to teach to children are

- words with high utility;
- words which occur most often in the language;
- words needed often in writing; and,
- words the child almost knows that a little more practice will bring to overlearning.

Principle 4: Phonics/Decoding Skills: Teach students to use simple and complex letter-sound relationships to solve words in reading and writing.

In Reading Recovery lessons, children learn letter-sound relationships in several different ways, and they are taught to apply that knowledge in reading and writing. Word-solving skills are assessed on a word reading test, a test of hearing and recording sounds in words, and a test of text reading. Analysis of students' errors while they read texts reveals their current skills, and the teacher works from there. Through explicit instruction based on the individual's needs, students are taught to analyze words while reading text. Strategies include left-to-right letter or letter cluster sound analysis as well as noticing word parts. Several different components of the lesson foster the use of sounds and letter correspondence. All instruction is directed toward helping children learn how words work and the automatic, rapid recognition of words while reading for meaning.

If the child has low letter knowledge, the teacher will work intensively with letters; but when the child knows about 20 letters, the teacher will also begin to do some work with words in isolation. This procedure is called *making and breaking*. Using magnetic letters, the teacher works with the child each day, moving from making words that the child knows to using predictable (regular) letter-sound sequences, to simple analogies, and to less predictable letter-sound sequences. The process is systematic in that the teacher has a precise record of the sound-letter sequences that the child already knows and can use; the expansion of knowledge moves from that place to more complex associations. The emphasis is on flexibility and on helping children learn principles to apply in solving many words.

Principle 5: Phonics/Structural Analysis: Teach students to use structural analysis of words and learn spelling patterns.

In Reading Recovery, word analysis is integral to the reading and writing of continuous texts, and there is also explicit instruction in structural analysis of words. Words are considered in isolation to illustrate principles that help children gain control of the principles that underlie English spelling. There is a strong link to reading and writing, with the goal of helping children quickly use knowledge of word structure to take words apart and to spell words.

Principle 6: Fluency/Automaticity: Develop speed and fluency in reading and writing.

In Reading Recovery, there is a strong emphasis on teaching for fluency and phrasing in oral reading. In the 30-minute Reading Recovery lesson, the majority of time is devoted to students' reading of continuous text. While it is important for children to read and use problem-solving skills on a new, challenging text every day, Reading Recovery teachers also make extensive use of rereading texts. Teachers select texts carefully to encourage fluency.

Principle 7: Comprehension: Teach students to construct meaning from print.

Reading Recovery students are taught that what they read must make sense. Instruction helps students develop a variety of strategies directed toward helping children search for meaning as they read. In fact, the Reading Recovery teacher assures that children never lose meaning by careful text selection, careful introduction, and conversation about the story. These strategies (called a self-extending system) include helping children

- monitor their own reading and writing;
- search for cues in word sequences, in meaning, and in letter sequences;
- discover new things for themselves;
- repeat as if to confirm the reading or writing so far;
- self-correct, taking the initiative for making cues match or getting words right; and,
- solve new words by using all the above strategies.

Principle 8: Balanced, Structured Approach: Provide a balanced approach so that literacy develops along a broad front and students can apply skills in reading and writing.

Reading Recovery consists of an interrelated set of learning experiences. Teachers intentionally work to be sure that students make connections across components of the lesson framework. A key concept in Reading Recovery is that "every new thing learned should be revisited in several other activities." A lesson consists of a variety of activities including reading and comprehending both familiar and new texts, writing a message of importance to the child, phonemic awareness, letter-sound correspondence, basic sight words, fluency, and teaching for strategic processing. It is this balance of activities, providing the opportunity to use skills in many ways, that allows for acceleration.

Principle 9: Early Intervention: Intervene early to undercut reading failure.

Reading Recovery is a short-term (12 to 20 weeks) safety net intervention. Children are entered into Reading Recovery at a critical time in their school careers (age 6 or during first grade). Reading Recovery helps children make accelerated progress and catch up with their first-grade peers. The program also helps

students continue to progress with good, ongoing classroom teaching. It is a supplementary opportunity and is not intended to replace classroom instruction.

Principle 10: Individual Tutoring: Provide one-on-one assistance for the students who are having the most difficulty.

Reading Recovery is defined as one-to-one tutoring. It is not a classroom program; it is not a small group program. Quite simply, if the instruction is not one-to-one, it is not Reading Recovery.

Reading Recovery: An Analysis of a Research-Based Reading Intervention[1]

Gay Su Pinnell
The Ohio State University

Literacy is in the forefront of national attention. According to Reid Lyon of the National Institute of Child Health and Human Development, "reading failure is not only an education problem, but a significant public health problem as well." National goals and national standards are directed toward raising the general reading competencies of America's school children; but there is special concern for the children who lag behind. It is in the national interest to provide high quality, intensive intervention for children who are having difficulty in learning to read during the early years of school. And, it is essential for the intervention to catch students before they fail and before they fall so far behind their peers that they can not profit from classroom instruction (Foorman, Francis, S. Shaywitz, B. Shaywitz, & Fletcher, 1997; Torgeson, Wager, & Rashotte, 1997a).

If we do not significantly reduce failure in the early years of schooling, it becomes more and more detrimental to the individual and expensive to the system. We take the risk of having a

[1]This document was prepared by Gay Su Pinnell for the use of certified Reading Recovery professionals. Pat Kelly, Adria Klein, Maribeth Schmitt, Noel Jones, and Barbara Schubert assisted in the preparation. This material closely represents material already published under copyright. Permission is needed to quote extensively from Marie Clay's publications. Marie M. Clay has consented to Gay Su Pinnell's right to represent in this form, protected by the said author's right to copyright and by the trademark of Reading Recovery.

large number of young adults who have very low literacy skills and negative attitudes toward literacy, and, as a result, toward schooling. Reading Recovery®[2] is precisely designed to significantly reduce failure in reading.

It makes sense to design our interventions in a way that is consistent with what we know from research about "what works" for young, at risk children. Well designed and delivered interventions that are consistent with the findings of research are worth the investment of resources. In this article, I focus on Reading Recovery as a research-based intervention that incorporates elements supported by research; further, Reading Recovery selectively and uniquely applies these research-based elements in a masterful mix of instruction, with the guiding principle of working from the individual child's strengths and needs.

The goal of all reading instruction is to teach the child to read with understanding. Reading Recovery is a balanced approach within which powerful instructional components work together to enable young, initially struggling readers to strategically process written texts. There is attention to needed details, for example, letters, sounds, and word parts; there is attention to the use of decoding strategies while reading and writing texts. And, there is attention to the language aspects of reading such as monitoring for comprehension and using phrasing and fluency. There is direct instruction and there is supported practice. This paper reports an analysis of the components of Reading Recovery; it is impossible to do so without taking lessons apart to examine each teaching action. The results in terms of student achievement, though, are related to the combination and integration of these components rather than to a single element.

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[2]Reading Recovery® is a program trademarked by The Ohio State University, with permission granted by Marie M. Clay. The trademark was established to protect the integrity and quality of the program; sites meeting standards for Reading Recovery implementation are granted a *royalty free* use of the trademark name yearly. In the interest of readability, the symbol ® is used here but not throughout this document.

As a basis for this component analysis, I examined a selected body of empirical research that is currently receiving national attention. Reid Lyon (1998), Chief of the Child Development and Behavior Branch of the National Institute of Child Health and Human Development (NICHD) has defined this body of research as the following:

> First, the NICHD reading research program is rooted in scientific tradition and the scientific method. The program rests on systematic, longitudinal, field-based investigations, cross-sectional studies, and laboratory-based experiments that are publicly verifiable and replicable. Second, the research integrates quantitative and qualitative methods to increase the richness, impact, and ecological validity of the data. However, using qualitative research methods requires the same scientific rigor employed in quantitative studies. Third, the NICHD reading research program is only one of the many programs dedicated to understanding reading development and difficulties. (p. 15)

While much information may be gained from well-designed longitudinal case studies and from program evaluation, the purpose of this document is to focus only on the research identified by NICHD as "systematic and replicable." A review of this selected research reveals both instructional and organizational principles that are characteristic of programs that "work" for students who are having difficulty in learning to read and write. Reading Recovery will be analyzed in relation to ten guiding principles, for which supportive empirical research will be cited. A high quality reading intervention must:

- Teach students to hear the sounds in words [phonological awareness].

- Teach students to perceive and identify letters [visual perception/orthographic awareness].
- Teach students to recognize words [word recognition].
- Teach students to link sound sequence with letter sequence in reading and writing words [phonics/decoding skills].
- Teach students to make connections between words and notice and use spelling patterns [phonics/decoding skills using analogy].
- Develop speed and fluency in reading and writing [fluency and automaticity].
- Teach students to construct meaning from print [comprehension].
- Provide a balanced approach so that literacy develops along a broad front and students can apply skills in reading and writing [balanced approach].
- Intervene early to undercut reading failure [early intervention].
- Provide one-on-one assistance for the students who are having the most difficulty [individual tutoring].

The Needs of Beginning Readers Who Have Difficulty Learning to Read

Some beginning readers struggle to understand the relationships between oral and written language. Meanwhile, they find the other students racing away from them as they become readers and writers. First, it is important to note that young readers who have difficulty are mostly of average intelligence and they may have problems resulting from multiple and differing causes. They require one-on-one instruction from a teacher who is able to use a balanced range of approaches in an intensive and individualized way. With appropriate intervention, almost all can learn to read, provided instruction is intensive and begins early (Vellutino, Scanlon, Sipay, Small, Pratt, Chen, & Denckla, 1996). It is therefore important that reading interventions be multi-dimensional in nature in order to meet the needs of these diverse learners.

The report of the National Committee on the Prevention of Reading Difficulties in Young Children[3] states that "there is abundant empirical and observational evidence that the children who are particularly likely to have difficulty with learning to read in the primary grades are those who begin school with less prior knowledge and skill in certain domains, most notably, general verbal abilities, phonological sensitivity, familiarity with the basic purposes and mechanisms of reading, and letter knowledge." (Snow, Burns, & Griffin, 1999, p. 117). It is also important that reading interventions provide a strong foundation for these young learners, including the development of phoneme awareness, orthographic awareness, familiarity with words, and important concepts about print.

The Reading Recovery Lesson: Word Work, Reading and Writing

The Reading Recovery lesson, designed by Clay (*Reading Recovery: A Guidebook for Teachers in Training*, 1993b), provides a masterful combination of components that are consistent with the recommended research. According to Adams (1990),

> The Reading Recovery program has been methodically designed to establish and secure that whole complex of lower-order skills on which reading so integrally depends. Its goal extends much further. The program is intended to help the children learn to monitor their own reading; to develop the habit of rereading a word, phrase, or passage when unclear; to know not only that they can discover new words and meanings but also that they can cross-check their discoveries, confirming or correcting them on their own; and to develop a

[3]The committee reviewed a defined body of research that met the criteria established by the National Institute of Child Health and Development. The findings of the committee are reported in Snow, C. E., Burns, M. S., and Griffin, S. (Eds.). *Preventing Reading Difficulties in Young Children*. Washington, DC: Committee on the Prevention of Reading Difficulties in Young Children, Commission on Behavioral and Social Sciences and Education, National Research Council.

strong sense of how to search deliberately and methodically for information in letter sequences, word sequences, or meaning when needed. (p. 421)

Instruction provides for learning in the areas of phonological awareness, letter identification, concepts about print, and word learning. Lesson components discussed in this paper are presented in Table 1:

Table 1. Components of the Reading Recovery Lesson

Context	Specific Teaching/ Learning Activity	Base of Instruction
Reading	Rereading familiar texts.	Reading continuous *text*.
Reading	Rereading yesterday's new book (teacher assessment).	Reading continuous *text*.
Letters/Words	Letter identification *and/ or* making and breaking words using magnetic letters.	Working with letters, sounds, and words using plastic letters on a magnetic board.
Writing/Sounds	Composing and writing a story (including hearing and recording sounds in words). Writing words for automatic word learning and fluency.	Writing continuous text, with attention to letter-sound relationships and the structure of words.
Constructing and Reading Text	Cut-up story to be rearranged.	Constructing, sequencing, reading task (involves visual searching and confirmation).
Reading	Introducing a new book. Reading a new book.	Thinking about continuous text - story or informational. Reading continuous *text*.

Some lesson components focus the child's attention at the letter or word level in order to develop phonological abilities and visual perception abilities as well as to help them learn words and learn the structural properties of words, that is, how words "work." Letters, sounds, and words are essential information for readers and Reading Recovery teachers assure that children learn them. Other lesson components provide instruction as children are reading or writing continuous text. Children learn strategies for *using* their understanding of letters, sounds, and words within the processes of reading and writing.

It is obvious from the framework described above that Reading Recovery is a text-based program in which students have many opportunities to read and reread texts selected by the teacher for appropriate level of difficulty and for learning opportunities. Students also have the opportunity to compose and write a message every day, spelling words and using various word solving strategies as they write. But it is also obvious that Reading Recovery teachers spend time with children working on words, letters, and sounds so that they focus their attention on the internal structure of words. Letter-sound relationships, as well as the analysis of words, are taught explicitly. Analyses done at the letter and word level are continually incorporated into meta-operations for the successful reading and writing of texts. This balance of word work, reading and writing - tailored to the precise needs of the individual learner - makes the Reading Recovery lesson accelerative for these initially struggling readers.

Ten Principles for Designing Reading Intervention Programs

Elements of the Reading Recovery lesson will be described and linked to each of the first eight instructional principles drawn from research. The final two principles refer to organizational

arrangements against which Reading Recovery will also be assessed.

Principle 1: Phonological Awareness: Teach students to hear the sounds in words.

Torgeson (Torgeson, Wagner, & Rashotte, 1977a, 1977b) has argued the importance of assessing children's phonological awareness as a critical aspect of learning to read (see also, Juel, 1991). The phonological system refers to the sounds of the language; when children develop phonological awareness, they become sensitive to the sounds. They recognize that spoken words consist of a sequence of sounds (Ball & Blachman, 1991). They can hold up language and its sounds to conscious observation and analysis. They can tell when words start like or end like other words. Phonological awareness may involve several different ways of breaking up and analyzing words, including a phoneme-by-phoneme analysis, syllable analysis, or onset-rime analysis.

Listeners automatically process speech signals; indeed, human beings are uniquely programmed to do so. In speech, the consonant and vowels are completely coarticulated so that they do not stand out as separate entities. This coarticulation is not a problem for listening but it does make it hard for children to discover that a word has an internal structure. They need to learn to "hear the sounds within words," for example for the word *bat*, rather than as separate sounds, consonants followed by an "uh" as in *buh, a, tuh* for *bat*).

Phonemic awareness (that spoken words consist of a sequence of sounds) is an important understanding that is basic to grasping the alphabetic principle (Ball & Blachman, 1991). The alphabetic principle is the basis for the English writing system.

Grasping the alphabetic principle means understanding that written words are made up of letters and these letters are approximately matched to the sounds of language; that is, the graphic units of the alphabet are related to the phonological structure of words (I. Liberman, D. Shankweiler, & A. Liberman, 1985).

Young children demonstrate awareness of syllables, but awareness of the sounds in words, or "phoneme segments," is more difficult for young children to achieve (Liberman, I., Y., Shankweiler, D., Fischer, & Carter, 1974). Phoneme awareness comes later and many children need some help or instruction in developing it. This strong predictor of reading achievement (Lomax & McGee, 1987) involves children's ability to recognize that words can be broken into phonemes and syllables and being able to manipulate these elements.

A large body of research documents that phoneme awareness is related to early development of the ability to read and spell words (Blachman, 1984; Bradley & Bryant, 1983; Fox & Routh, 1984; Hohn & Ehri, 1983; Lundberg, Frost, & Petersen, 1988; Perfetti, Beck, Bell, & Hughes, 1987; Treiman & Baron, 1981; and Vellutino & Scanlon, 1987). Researchers have found that performance on reading tests was predicted by performance on phonological awareness measures as well as ability to recite nursery rhymes (Bryant, Bradley, Camlean, & Crossland, 1989; Bryant, MacLean, Bradley, & Crossland, 1990). Early training in phonemic awareness has been shown to be related to word recognition and spelling (Ball & Blachman, 1991).

Deficiency in phonemic awareness has been identified as a major cause of difficulty in word identification (Vellutino & Denckla, 1991). According to Griffith & Olson (1992), phonemic awareness is foundational to using letter-sound correspon-

dences for solving words in reading. It may also be related to whole-word learning (Tunmer, Herriman, & Nesdale, 1988).

Phonological Awareness in Reading Recovery Lessons

Developing the ability to hear the sounds in words is explicitly recognized in the Reading Recovery program (Adams, 1990). When children are evaluated for selection for Reading Recovery, a measure[4] of ability to hear and record sounds in words is used (Clay, 1993a). The measure, Hearing and Recording Sounds in Words, involves dictating a sentence to the child, who is expected to write it, one word at a time as prompted by the assessor. The measure is not a spelling test; it is scored to determine the number of phonemes (maximum = 37) that the child has represented accurately. Several sentences have been constructed to provide for retesting. The test assesses children's ability to represent 37 phonemes. Performance on this measure of phonological awareness provides data that teachers use daily as they work individually with young children.

In Reading Recovery lessons, children are explicitly taught how to use letter-sound relationships to construct words in writing and to analyze words while reading. In order to accomplish these complex analyses, specific instruction is employed to help children think about the order of sounds in spoken words and to analyze the word into the sequence of sounds. From the story that a child writes, the teacher selects two or three words that will be illustrative of the process. At first, the teacher chooses words in which it is easy to hear the sounds, which the child will need to use often, and which have simple letter-sound relationships.

[4]Test-retest reliability coefficients reported for this measure ranged from 0.73 to 0.89 (Clay, 1985) on a New Zealand population. This research reported corrected split-half coefficients ranging from 0.84 to 0.88. Validity was determined by correlating the dictation test results with scores on a test of word reading with 100 children at age 6.0. Correlation coefficients were determined to be 0.79 (Clay, 1966). In a study of kindergarten and first-grade children (Pinnell, McCarrier, & Button, 1990), results of the dictation scores provided a source of data to determine reliability on an American sample. A Cronbach alpha procedure indicated a reliability coefficient of .96 on the first-grade sentences.

According to Clay (1993b), "...some children find it extraordinarily difficult to hear the sounds that go to make up words. For example, some children consistently focus on the final sound of the word and for them this completely masks the initial sounds. For children who cannot hear the order of sounds in words the teacher can act as analyser of the words. She articulates the words slowly, but naturally, and gradually develops the same skill in her pupils" (p. 32).

Most children selected for Reading Recovery need instruction to develop phonological awareness. If this is the case, in the first lessons, the child is encouraged to articulate and hear the word in the absence of letters; he uses counters, which are pushed into boxes while the word is articulated (Elkonin, 1963, 1973). This "hearing sounds in words" exercise is used daily in Reading Recovery, moving from sound boxes in the absence of letters to boxes in which letters are recorded for each sound, and finally, to working out words with a box for each letter (Clay, 1993). In this way, children are explicitly shown how to analyze sounds in words and to connect phonemes and the grapheme patterns that represent them. The learning in this part of the lesson is applied in several other parts as children become more competent in hearing sounds in words (Clay, 1993b).

Principle 2: Visual Perception of Letters: Teach students to perceive and identify letters of the alphabet.

The alphabet is the basic tool of the reader and writer; all words in our system are based on this limited set of graphic signs. To identify letters, a basic foundational skill, the child must learn to notice the features (very small differences) that distinguish one letter from another. In students' early experiences with print, it is important for them to notice letters and to learn how to differentiate one from another. They also need to learn the

names of letters (Pressley, 1998; Venezky, 1975; Walsh, Price, & Gillingham, 1988). Letter identification is traditionally evaluated in preschool and kindergarten children. Adams (1990) has said that "...knowledge of letter names is the single best predictor of success in first-grade reading." (p. 21). Snow, *et. al.* (1998) reports that "the strongest predictor on its own is letter identification."

A large number of longitudinal studies indicate that "how many letters a kindergartner is able to name when shown letters in a random order appears to be nearly as successful at predicting future reading, as is an entire readiness test." (p. 113). Furthermore, recognizing the letters of the alphabet is a necessary, although not sufficient, factor in mastering the alphabetic principle (I. Liberman, D. Shankweiler, & A. Liberman, 1985). Some research indicates that even children who have very little difficulty visually identifying letters may yet be making little progress in learning to read and will need special help in other areas of learning (Stanovich, 1982; Vellutino, 1979). Snow, Burns, & Griffin (1998) caution that letter identification alone is not sufficient as a single measure to identify children for early intervention; nevertheless, letter knowledge is an important factor.

The National Committee on the Prevention of Reading Difficulties in Young Children (Snow, Burns, & Griffin, 1998) specifies kindergarten accomplishments to include recognizing and naming all uppercase and lowercase letters of the alphabet. Research provides ample evidence that low letter knowledge is a roadblock in learning to read; letter-level cues are the primary means for recognizing words (Adams, 1990; Pressley, 1998).

Letter Identification in Reading Recovery

Students are selected for Reading Recovery during their first grade year. They are assessed for letter recognition as part of the battery of tests that are used for selection. Most children who enter Reading Recovery need to learn more about letters, and some have very limited knowledge (for example, in one large city the average entry score was 2, and for many children that involved the same letter, upper and lower case versions). On the assessment, letters are presented randomly so that the child is required to recognize each letter rather than "saying the alphabet." The initial assessment provides good information for the beginning of instruction. There is ongoing observation and careful recording as the child not only learns more letters but gains strategies for looking at them and using them in flexible ways. The child is assisted to build a system for learning letters — knowing what to look for to distinguish one from another.

Letters, sounds, and words. Working with letters is an integral part of the Reading Recovery lesson until the child is competent in this area. Teachers work to ensure that very early in the program, children learn how to look at letters, distinguish one from another, learn their names and associated sounds, learn to notice letters within words, and produce all of these responses with speed. According to Clay (1993b), "The child must learn to attend to the details in print, respecting the rules of direction, the order or sequences of letters, and the order of words. Some children, finding this difficult or tedious, coast along on their language skills and pay as little attention to the detail of print as they can get away with." (p. 23). Several components of the Reading Recovery lesson work against this kind of behavior.

Because teachers are working one-on-one every day and keeping daily records, it is possible to identify with precision what

the child knows and/or is confused about and to individualize the letter learning program for maximum effectiveness. Teachers begin with the known set of letters and work for expansion. Early in the program, the teacher is working to help the child "gain footholds" in print by learning letters and some simple words.

For children with very low letter knowledge, teachers use a movement, verbal, visual approach to help the child remember the letter. Children write letters, use their personalized alphabet books, construct their own alphabet book with their own letter knowledge recorded to date, and work extensively with magnetic letters, which, because they are three-dimensional, lend themselves to feeling shapes and sorting letters in various ways.

After taking a running record on yesterday's new book, teachers always work with magnetic letters. "This is a short segment of a lesson in which children learn to identify all the letter forms, but the letters must be overlearned because as well as identifying the letter, the children need to learn fast and accurate visual responses which require only minimal attention" (Clay, 1993b, p. 24). Other segments of the lesson move the child into reading and writing, so performance in those areas is not delayed until the child knows every letter. Alphabet learning is completed before the end of the program, however, as documented by exit scores on the letter identification task. The personalized alphabet book is useful in helping the child "tidy up" knowledge of these small items of print. Program evaluation reports indicate that that almost all children who participate in the program can identify the 54 characters (upper and lower case and the print version of *a* and *g*) by the end of their individualized twelve- to twenty-week program. This work with isolated letters is combined with noticing letters within words and within continuous text.

Writing. As the child learns more, high value is placed on noticing and using letters within writing. As the teacher and child work together to compose and then write a message, there is opportunity for the teacher to call the child's attention to visual features of letters, to orientation, and to movement as the child writes them. Often, verbal descriptions are used to help instill the movements necessary to produce letters, for example, "*make k down, and in and out*" (Clay, 1993b, p. 26). In a writing book, turned sideways, the child's story is written on the bottom page. The top page, or "practice page," is a place where the child can write letters (early in the program for children with low letter knowledge) and words.

Reading. When children have very low letter knowledge and are just starting to read, the teacher's task is to find a readable text. That will be one with just one or two lines of print and possibly repeating language patterns. The idea is *not* for the child to memorize text. As Clay (1993b) states:

> It has been erroneously reported that in Reading Recovery children are expected to memorise the texts of their first books in order to match what they have learned by heart with what they see on the page (Ehri & Sweet, 1991). Such a memorising strategy would be antagonistic to what the reader has to do: the on-going problem-solving of the reader on continuous text has nothing in common with memorising the text first. Memorising is NOT a place to begin because it gives the novice reader an incorrect impression of what the task is. (p. 39)

Principle 3: Word Recognition: Teach students to recognize words.

In the earliest stages of learning to read, students do not have in place the skills needed for phonological decoding systems; so, they must often read words by sight (Ehri, 1991). These early sight words are very helpful to students as they learn more about word identification strategies. Children who know how to recognize letters and have a small body of words they can read, move more easily to the application of letter-sound relationships to reading words (Ehri, L.C., & Wilce, L.S., 1985). Also, as Vellutino & Denckla (1991) found, some words in English require sight recognition because of inconsistent letter-sound generalizations (for example, of, some, who, the). Noting the order in words also seems to support word recognition (Vellutino & Denckla, 1991).

Moreover, it appears that the more words an individual knows and recognizes, the easier it is to learn more. In a longitudinal study, Juel (1988) found that first graders who had good word recognition read twice as many words in books as did those who had low competence in this area. Having a body of sight words allows children to read more rapidly and to read more. Juel, Griffith, & Gough (1986) also found high correlations between word recognition and text comprehension. Stanovich (1985) offers:

> While it is possible for adequate word recognition skills to be accompanied by poor comprehension abilities, the converse virtually never occurs. It has never been empirically demonstrated, nor is it theoretically expected, that some instructional innovation could result in good reading comprehension without the presence of at least adequate word recognition. (p. 418)

Some arguments center on whether it is best for students to learn words in context or in isolation. Studies indicate that when words are considered in isolation, students may focus better on letter-sound associations and may learn words somewhat faster (Ceprano, 1981). But interest is higher when words are in context; transfer of word learning to text reading is promoted; and students gain fluency (Ceprano, 1981). According to Adams (1990), who is also an advocate of systematic, explicit phonics instruction, "repeated readings and repetitive texts set the stage for the acquisition of a broad sight vocabulary" (p. 69). It seems prudent to work with words *both* in isolation and in the context of reading and writing.

As children go beyond the early stages of learning to read, we would expect an acceleration in their word learning because they have learned *ways of learning* words. Rapid, automatic word recognition is related to competent, fluent reading with understanding (Biemiller, 1970; Blanchard, 1980; Calfee and Piontkowsky, 1981; Chall, 1989; Herman, 1985; Juel, 1988; Lesgold, Resnick, & Hammond, 1985; Stanovich, 1985). For fluent reading with understanding, readers need instant recognition of about 95% of words in the text (Adams, 1990). It also is expected that children will understand that the sequence of letters in a written word represents the sequence of sounds. Recommendations of the National Committee on the Prevention of Reading Difficulties in Young Children (Snow, Burns, & Griffin, 1998) include as kindergarten accomplishments the building of a repertoire of some conventionally spelled words. For those children who have not accumulated some known words, intervention is needed.

Word Recognition in Reading Recovery

Children who are just beginning to learn about literacy first learn what a word is; that is, when is a group of letters a word? They learn basic concepts such as the use of space to identify words in text, that the order of letters matters, that letters are linked to the sounds we speak, and "that the first letter of a word is determined by the position in relation to the space" (Clay, 1993b, p. 43). As they learn a few words, children begin to see similarities between words. They encounter the same letters and clusters of letters over and over noticing that certain letter sequences appear in words.

Letters, sounds, and words. First grade children who are having extreme difficulty in learning to read and write generally know very few words - if any. These children are just learning to look at print and to identify a few letters and sounds. It is helpful to build a small repertoire of words that the child knows in great detail. With this goal in mind, early in the children's program, the teacher will work to extend knowledge of words by having children make words with magnetic letters, trace words, and write words. Word cards may also be used. Language like this may be used: "Write it again. And again. Now write it here. And here. Do it faster. Once more. Come and write it on the board. Use the magnetic letters" (Clay, 1993b, p. 30).

The teacher works for full control of the word and then for flexibility by having the child construct the word with different materials (magnetic letters, chalk, water and paintbrush, finger on desk, white board, marker, etc.) and in different places. These procedures help the child to develop a "program of action" for the word, one that will allow him to place the letters in sequence with a minimum of attention (Clay, 1993b, p. 30).

These high frequency words are useful in helping the child to write simple messages with the teacher's help as well as in monitoring reading in the first story books. A lesson may begin with a brief practice of words that the child has learned recently. Words are written quickly on the board with an eye to fluency. The teacher's goal is to help the child develop ways of remembering words so that this strategy can be applied to a rapidly growing reading and writing vocabulary. Once a word is learned, the teacher works for flexibility by having the child make the word in magnetic letters, jumbling and remaking it until the child is fluent. The word may also be used in the story that the child writes and it may be encountered in selected books that the child reads (Clay, 1993b, p. 56).

Writing. In each lesson, the child is helped to compose a message and to write it, word by word, in a writing notebook. There is always a story page and a "practice page," which is used to work out words and learn more about how words work. On the practice page, much of the work involves teacher-child interactions over specific word work and sounding out the word as it is written. Among the ways children work with words is writing high frequency and "high utility" words several times and developing a way of studying and remembering words by noticing the letters. In this way, the child can add to his growing knowledge of particular words. High utility words are those that are used often in reading and writing and also have value for making connections with other words. For example, a child who has learned, or even over learned, the word *it* as a high frequency word will be better able to learn *in*, *is*, and *his*. The words that the teacher selects to teach to children are (Clay, 1993b):

- words with high utility
- words which occur most often in the language
- words needed often in writing
- words the child almost knows that a little more practice will bring to overlearning. (p. 30)

Writing and reading are connected when the teacher writes the child's message on a sentence strip and then cuts it apart, possibly word by word, for the child to reassemble. This activity provides opportunity for practicing early behaviors such as word by word matching but also for noticing visual aspects of words and making beginning letter-sound analyses.

Reading. In the earliest reading books, teachers direct children's attention to words within the simple texts that they are reading. The teacher will ask the child to locate known and unknown words by making and calling for a response or by asking the child to find the word. Another way the teacher draws attention to words within text is to call for the child to notice errors and then talk about the discrepancies between the oral reading and the word in the text. Known words (or words about which the child knows something) are important in helping the child monitor his reading, notice the discrepancies, and search for more information to produce an accurate reading. Teachers help children to check their word recognition against meaning and syntax.

Principle 4: Phonics/Decoding Skills: Teach students to use simple and complex letter-sound relationships to solve words in reading and writing.

An expert reader is, among other things, an expert decoder or solver of words that are embedded in text. An expert writer is able to spell a large number of words independently and to use

both simple and complex letter-sound relationships in spelling words. In order to make relationships between letters and sounds, the learner must be able to hear the sound and distinguish letters.

The whole system works together, with learning in one area supporting learning in other areas. Phonics has been defined as "a way of teaching reading and spelling that stresses symbol-sound relationships" (Harris & Hodges, 1995, 186). Phonics is designed to teach children how to *decode* words, that is, to use the relationships between letters and sounds to solve words. There is some evidence that when letters and sounds are taught together, the learning is accelerated. For example, Bradley & Bryant (1983) found that combining phonemic awareness exercises with explicit instruction in letter-sound correspondences was effective. Word identification strategies are enhanced by providing to children both phonemic awareness exercises and letter-sound association training. For students who recognize letters and have begun noting sounds in words, associating sound cues with visual cues results in greater growth in phonemic awareness (Hohn & Ehri, 1983).

One of the early understandings is that print is, indeed, something unique. It is not like pictures in that written words are made up of letters that map to speech sounds (Snow, Burns, & Griffin, 1998, p. 45). This recognition that print is unique is foundational to visual word recognition. Research has shown that learning the relationships between print and speech facilitates learning to read. "These findings are buttressed by others showing that knowledge of word meanings, an understanding that print conveys meaning, phonological awareness, and some understanding of how printed letters code the sounds of language contribute directly to successful reading." (Snow, Burns, & Griffin, 1998, p. 320).

In the beginning, young children will use any association at their disposal to recognize words. Gough and Juel (1991), in fact, found that children would use even a thumbprint as a tool in recognition. These researchers claim that instruction is necessary to help children use letter forms and associated speech forms so that they can learn how the system works. They also state that young writers may use phonemic awareness and letter knowledge to spell independently many words and to build a repertoire of conventionally spelled words. If children are not exhibiting these behaviors, they will need intervention.

English is an alphabetic system, meaning that it relies on sounds being represented graphically by letters of the alphabet. The literacy learner must get the idea that letters represent small sound units within words. This system makes it possible for a limited set of symbols [letters] to represent all of the sounds and words of English. So this letter-sound relationship has the advantage of efficiency.

An aspect of English that makes spelling even more difficult is that, historically, pronunciation of words has changed. But, we preserve the previous or historical spellings of some words (visually) rather than changing the spelling to represent the new pronunciations. We are even further away from "one letter, one sound" in such words. So, *domestic*, becoming a noun, is *domesticity*, preserving the *c* even though the sound changes. English also conforms to its historical roots. In spite of change in pronunciation, historical spellings like the *gh* in *light* and *neighborhood* remain in the word even though the *g* is no longer spoken. For upper elementary students, it is helpful to study these historical relationships in words, and how English has borrowed many words from other languages. But when we think about reading interventions, it is simply useful for us to recognize that students must learn how words *look*. The visual patterns are important in reading.

Decoding words requires looking at the letters and "recoding" them into their sounds, and finally matching this "recoded" word with the pronunciation of a word that is stored in memory (Daneman, 1991). Associating sounds with the letters in words assists word learning by making it easier to recall them (Mann, Liberman & Shankweiler, 1980). When some sounds and letters are known, fewer exposures to a word are needed in order to learn it (Vellutino & Denckla, 1991), so sight vocabularies expand more rapidly and students make fewer errors (Ehri, 1991).

When we consider that helping children become better word solvers helps general reading ability accelerate (Stanovich, 1991) and also assists students in becoming better spellers (Juel, Griffith, & Gough, 1985), it seems important to be sure that all students, especially those considered to be at risk of reading failure, develop decoding skills. Early in their learning, students notice and use simple letter-sound relationships to decode words, left to right. This "sequential" decoding may begin as soon as children know some letters and their related sounds and have begun to "blend" the sounds while looking at the letters.

In writing, children will have learned to say words slowly, thinking about the sequence of sounds and relating them to sequences of letters. We see evidence of this learning in children's early spellings (Read, 1971). Even when they are first learning to read, children may notice and use more than the simple letter-sound relationships that we typically think of as "phonics." As they work with print, they may notice larger "chunks." Treiman (1992) has speculated that "Children may more readily learn links between groups of letters and groups of phonemes. Reading and spelling instruction that begins with larger units may be more successful than instruction that begins

at the phoneme level." It seems important to support children in learning single letters or letter clusters and corresponding sounds but to encourage them also to notice the larger units. Pressley (1998), reporting on his observations of a group of teachers in Madison, Wisconsin, who were effectively teaching decoding, says that:

> The idea of giving letter and word chunk cues priority in word recognition, and then using semantic-contextual cues to check decodings based on sounding out, is one shared by some with distinguished reputations in teaching beginning reading (e.g. Clay, 1991). Indeed, the Madison, Wisconsin, teachers I have been studying found the inspiration for their instruction in Clay's writing. (p. 146)

Many students learn these word solving strategies incidentally as they encounter words in reading and writing; but many require explicit instruction. Readers who are having difficulty not only require instruction on letter-sound relationships within words but they need explicit instruction as to how to apply that knowledge to word solving and to do so while reading continuous text (Adams, 1990; Anderson, Hiebert, Scott, & Wilkinson, 1984; Ehri, 1991; Gough & Hillinger, 1980; Johnson & Baumann, 1984; Mason, 1980; Barr & Dreeben, 1983; Juel, 1991).

Phonics/Decoding Skills in Reading Recovery

In Reading Recovery lessons, children learn letter-sound relationships in several different ways, and they are taught to apply that knowledge in reading and writing. Word solving skills are assessed in several measures used in the Observation Survey: the word reading test, the test of hearing and recording sounds

in words, the writing vocabulary test, and the text reading assessment. The hearing and recording sounds task reveals what children need to know about letters and sounds. Analysis of students' errors while they write words and read words (both in isolation and embedded in continuous text) reveals their current skills. The teacher works from there to design lessons to teach what the child needs to know next. The explicit instruction is based on the individual's needs.

Several different components of the lesson foster the use of sounds and letter correspondence. All instruction is directed toward helping children learn how "words work" and for the automatic, rapid recognition of words while reading for meaning. Children learn how words work through explicit attention to words in isolation and through analyzing words (taking them apart) in reading and spelling them in writing. Students are also taught to use left-to-right sequential decoding while reading text. In both reading and writing, teachers use explicit instruction to demonstrate critical examples so that children develop powerful word analysis strategies that they can use on many words. This combination of approaches assures that children give direct attention to words but also have the opportunity to apply skills within the acts of reading and writing.

Letters, sounds, and words. If the child has low letter knowledge, the teacher will work intensively with letters; but when the child knows about twenty letters, the teacher will begin to do some work with words in isolation. This procedure is called "making and breaking," a title which is itself a comment on phonology and how we represent it! Using magnetic letters, the teacher works with the child each day, moving from making words that the child knows to using predictable (regular) letter-sound sequences, to simple analogies, and to less predictable letter-sound sequences. The process is systematic in that the

teacher has a precise record of the sound-letter sequences that the child already knows and can use; the expansion of knowledge moves from that place to more complex associations. There is an emphasis on flexibility and on helping children learn principles that they can apply in solving many words. Along with a call for research to evaluate Clay's ideas about word recognition, Pressley (1998) writes:

> We also are taken by Clay's positions on the importance of visual processing of words and attention to word sounds and parts. Clay (1991) argues for teaching children to attend carefully to words, analyzing the words into parts that can be sounded out, but also emphasizes that the decodings that result should be cross-checked with other information (i.e., syntactic and semantic-contextual cues) to determine whether the word as decoded makes sense. (p. 177-178)

After the child has read a book, the teacher may do a little more work on word solving using a white dry erase board or on paper. This work brings the child's direct attention to an example of word solving that illustrates a principle. The teacher illustrates how words work by adding, subtracting, or substituting letters and making analogies.

Words that the child uses in writing are also examined by using the "practice page." The goal is to learn how words "work." Children articulate words slowly, listening for sounds and connecting them with letters. "Boxes" are used to help children in this process. At first, teachers use a box for every phoneme or sound; but as the child learns more about the structure of words, the teachers begin to use a box for every letter. Teachers ask questions such as "What else can you hear?" or "What can you hear at the beginning?" Children move from using simple

letter-sound combinations to more complex ones. They learn that you need to analyze the new words that you want to write and to use letters, sounds, and spelling patterns to do so. They also use analogy, making connections between words.

Reading. In one Reading Recovery lesson a child will reread familiar books (that are easy but still offer some word solving opportunities), a book read for the first time the previous day, and a new book that has been introduced by the teacher. In the process of reading, children learn to apply their skills at word solving. They learn to take words apart while reading, to use initial letters and final letters as starting points, to connect sounds with letters and clusters of letters, and to notice the inflections that, added to words, change the word and make it easy to recognize. They learn not only to use the relationships of sounds and letters or letter clusters, but also to attend to large chunks or groups of letters within words; thus, they learn to use all of their developing knowledge of spelling patterns.

The teacher works to achieve rapid acceleration for the child; the sequence of instruction is determined by the child's skills and the knowledge of word segments that good readers use at a given level of learning to read. The teacher reinforces the child for self-monitoring using the letter-sound relationships he currently has. The teacher also encourages the use of letter sequences in recognition of new words. The goal is to teach the child to coordinate two complex sets of operations—sound sequence analysis and letter sequence analysis (Clay, 1993b, p. 44). In the introduction to the new text, for example, the teacher will ask the child to find one or two "new and important words" after he has said what letters to expect at the beginning. This activity directs the child's attention to the sequence of print cues that he will need to connect with meaning and language.

Teachers also provide explicit instruction in making left-to-right sound analyses of words. If a child has mastered sound-to-letter analysis but is not yet independently analyzing words in text, the teacher may write the words letter by letter on a chalkboard, asking the child to articulate the accumulating letters (for example, *c cr- cr-ash*) (Clay, 1993b, p. 47).

Books are selected so that the child will encounter words that require analysis. The goal is to learn to quickly take words apart without slowing down the reading too much. During the reading, the teacher quickly assists the child, when necessary, in problem-solving by using questioning techniques or pointing out a vital piece of information [such as a word ending]. As mentioned previously, a closer look at words using a white board or chalk board may be used after reading.

Writing. During the writing component of the Reading Recovery lesson, "the teacher calls attention to the sounds of words and spelling patterns by urging the student to listen carefully to words that will be written, prompting the child to write out a new word several times so that it will be memorable, praising progress, and so on." (Pressley, 1998, p. 177). Words are constructed in the context of producing a continuous message. The message is written on the "story page." Standard spelling is used on the words written in Reading Recovery lessons so that children can work with and later read the words to notice the structures and make connections between them. Writing their own messages helps children to see how text is composed and then written, letter by letter. Children have to keep the message in mind while attending to the details of print. Some words they learn to write quickly and automatically but others are used to rehearse a problem-solving process in which they use known words or parts of words to construct new words. They also form strong connections between sounds and letters or let-

ter clusters. Often, children will be observed to quickly write down a "chunk" of a word, showing the awareness of structural elements.

Principle 5: Phonics/ Structural Analysis: Teach students to use structural analysis of words and learn spelling patterns.

As students read more challenging texts, they need to learn sophisticated decoding skills. Students may have learned some letter-sound combinations and can decode simple words; but they need to go further so that they can analyze the structure of words (Nagy, Anderson, Schommer, Scott, & Stallman, 1989). More complicated understandings about how words work are developed as students learn about common spelling patterns. For example, through building and connecting words, students may learn that when a word or syllable ends with an *e*, the preceding vowel is usually long (*make*). When the word or syllable is "closed" with a consonant, the vowel is usually short (*hot*). Another important understanding to develop is that sounds attached to letters are affected by the letters that surround them. For example, vowels are affected by the consonants around them. We even talk about "r controlled vowels" in words like *fur*, *car*, and *sir*. It is useful for learners to see words in parts or "chunks" such as the "onset" or first part - *str* in *strike* - and the "rime" or last part - *ike* in *strike* (Adams, 1990).

In structural analysis, readers use letter sound relationships in combination with attention to larger word parts and spelling patterns. Structural analysis helps students recognize words more efficiently and rapidly in reading. In fact, this ability is a major element in skilled reading (Nagy, et. al, 1989). Readers are fully aware of the orthographic features of words as they begin to see common sequences and spelling patterns. These spelling patterns help them to read words (Ehri & McCormick, 1998).

Students need to learn to recognize words when their spellings have changed because of added endings; they learn about prefixes, compound words, and contractions. For skilled readers, word identification is based on rapid use of visual and phonemic information within the words, coordinated and checked with the meaning of the word in the context of the text (Adams, 1990, Daneman, 1991; Ehri, 1991; Juel, 1991; Stanovich, 1991). Context cues do provide support but can not be the primary word recognition strategy, as it is for some poor readers (Allington & Fleming, 1978; Gough, 1983; Stanovich, 1993-94; Stanovich & West, 1981). The process of recognizing words becomes more and more automatic; word learning is rapid. Readers can figure out words that they have never seen or heard before and come close to accurate pronunciation (Pressley, 1998).

Phonics/Structural Analysis Skills in Reading Recovery

In Reading Recovery, word analysis is integral to the reading and writing of continuous texts, but that does not mean that there is no explicit instruction in structural analysis of words. Words are considered in isolation to illustrate principles that help children gain control of the principles that underlie English spelling. There is a strong link to reading and writing, with the goal of helping children quickly use knowledge of word structure to take words apart and to spell words.

Letters, sounds, and words. The work on words becomes more and more sophisticated as the child learns more about reading and word structure. Work with magnetic letters (making and breaking) continues but at increasingly sophisticated levels. Words may be the focus of attention - taking them apart and/or linking them to other words - in any part of the lesson. There is particular attention to words in reading at these times (Clay, 1993b):

- when making and breaking words in the letter identification section of the lesson
- after familiar book reading
- during the work on the new book
- after the new book. (p. 48)

Some activities that contribute to the child's growing knowledge of word structures are adding inflections to known words, taking letters away from known words, substituting initial consonants, and making analogies. The teacher watches carefully to see what the child is actually attending to as they work together with easier analogies (words that rhyme and have the same spelling patterns). They then move to working out new words by analogy; for example, using *to* and *ball* as a basis for decoding *tall*. Harder analogies might involve spelling patterns (*night, light*). Teachers first provide explicit, clear demonstrations of concepts, and then students practice using magnetic letters, working for flexibility and fluency.

Once concepts are understood, teachers may prompt students, for example (Clay, 1993b):

- Make another word that sounds like that.
- Make another word that looks like that.
- Make another word that ends like that.
- Make another word that starts like that. (p. 51)

Reading. Children in Reading Recovery have many opportunities to take words apart while reading continuous text. During the reading of familiar texts, the child has opportunities to work in an independent way. Even though these texts have been read once or twice before, and they are relatively easy for the child, there is usually some opportunity for word solving. Rereading provides the opportunity for rapid word solving "on the run." The reading of a new text is carefully selected to provide chal-

lenge yet be easy enough for the child to engage in productive problem-solving. This "reading work" builds the self-extending system, defined as a system of strategies that enable the learner to learn from successful processing in reading. The self-extending system is one that enables the reader to keep on learning more.

As the child reads either familiar or new text, the teacher prompts and encourages the behaviors that will help the child improve the way he processes information while reading continuous text. The child, while reading, is orchestrating everything that he knows about the visual analysis of words, decoding skills, language syntax, and meaning. The teacher will prompt to encourage children to monitor reading, with language like "Does it look right?" or "Does that make sense?"

Specific prompts may support word solving by reminding the child to use behaviors that have been previously taught. For example, when a child is searching to solve a new word, the teacher may say something like "Do you know a word like that?" That prompt is a "call to action," meaning that the understanding and behavior of connecting words has been previously taught and the child has practiced it. Now, during reading, the teacher is reminding the child to use what he knows. This "teaching for strategies" process is powerful because it helps children use their strategies while reading text. As the texts grow more challenging, the child will be expected to take apart multi-syllable words and to use sophisticated word analysis strategies. There is a direct relationship between what the teacher is teaching in the "making and breaking" component of the lesson and what the teacher prompts the child to do during reading.

Writing. As the child learns more about writing, develops a core of words that he can write fluently and with ease, and is secure in the ability to use letters and sounds to spell simple words,

the texts he can write will increase in length and sophistication. More complicated words will be used, requiring a range of strategies. The child learns that (Clay, 1993b):

- Sometimes you can analyse new words you want to write.
- Sometimes you have to know how to spell a particular word.
- Sometimes you have to 'make it like another word you know' which means you solve it by analogy with a common spelling pattern used in English. (p. 35)

The teacher moves from asking the child about "what he hears" in a word to "what letters he expects to see." When "boxes" are used to work out words on the practice page, a box is used for each letter. This process allows the teacher to introduce the child to the more complex relationships between the sounds of the language and the way words are written. More complex spelling patterns such as *igh* for *i* are explored. As the child becomes even more adept at analyzing words in spelling, the work proceeds without boxes, although the teacher will continue to use explicit examples when needed.

Principle 6: Fluency/Automaticity: Develop speed and fluency in reading and writing.

Not only must children learn to read words, but also they must do so rapidly. Speed and fluency in reading are strongly related to comprehension. Slow, labored reading results in lowered comprehension because children can neither remember what has been read nor relate ideas to their knowledge base. The opportunity to read extended text is critical for fluency (and also for comprehension). Teachers should be watchful in providing many reading opportunities for students who are making

progress but not fast enough to keep up with most of the others in the class. Even though these students need more time reading and more instruction to build skills, they tend to receive less time reading and writing (Allington, 1991; Juel, 1988).

Teachers have long known that oral reading fluency was among the many abilities exhibited by good readers. Results of research provide evidence of the interrelationships between oral reading fluency and comprehension. It seems that good readers not only read quickly but they use phrasing patterns that reflect their understanding of the text's message (Zutell & Rasinski, 1991). Reading fluency may be directly related to the quality of students' reading comprehension (Reutzel, Hollingsworth, & Eldredge, 1994).

Becoming a fluent reader has to do with rapid, automatic word recognition as well as meaning construction. Most of the research into oral reading proficiency has centered around the ease, rapidity, and accuracy of reading performance. Rate and accuracy of oral reading are relatively straightforward characteristics to observe and measure; there are strong correlations between rate, accuracy, and scores on tests of reading comprehension (Pinnell, Pikulski, Wixson, Campbell, Gough, & Beatty, 1995). The theory suggests that if readers are automatically recognizing almost all of the words and rapidly figuring out a few that they do not know, then they have more attention for interpreting and understanding what they read.

When students are reading fluently, they are probably processing larger idea units or phrases. The meaning that they understand goes beyond individual words and it allows them to interpret the text. It is harder to measure what teachers call "phrasing," "ease," "smoothness," and "effortlessness" than it is to measure and quantitatively describe rate and accuracy, but these

aspects of oral reading may be related to how well students understand what they are reading (Snyder & Traver, 1987; Torgesen, 1986). A reader who is comprehending a text is likely to recognize sentence and phrase structure and is better able to reproduce the author's intended use of sentence and phrase structure. And, there are important factors beyond sentences. For example, understandings of text elements, such as story events, characterizations, or connections between text concept also influence expressiveness (Schreiber, 1991). Students who know what the text is "all about" and how it "works" will find it easier to read with fluency and phrasing.

Dysfluent reading becomes a concern because excessively slow and halting oral or silent reading limits the amount of reading that can be accomplished, discourages students so that they do not want to read, and interferes with comprehension because too much attention has to be given to word solving. Some researchers have recommended direct and concentrated instruction in fluency for delayed readers (Torgesen, Wagner, & Rashotte, 1997). For example, a program was designed and implemented for one year for second graders in a low economic area school (Stahl, Heubach, & Crammond, 1997). The program included fluency practice through rereading texts individually and with partners. Children's individual reading of books of their choice was also increased. Although about 10% of students were still reading below grade level, the results of the study indicated average growth of 1.88 and 1.77 grade levels for the 4 (year 1) and 10 (year 2) classrooms participating. The results of this research support the idea of using rereading as a deliberate approach to teaching for fluency. The National Research Council Committee on the Prevention of Reading Difficulties in Young Children (Snow, Burns, & Griffin, 1998) recommends that students have "sufficient practice in reading to achieve fluency with different kinds of texts written for different purposes" (p. 223).

Fluency/Automaticity in Reading Recovery

In Reading Recovery, there is a strong emphasis on teaching for fluency and phrasing in oral reading. In the 30-minute Reading Recovery lesson, the majority of time is devoted to students' reading of continuous text.[5] While it is important for children to read and use problem-solving skills on new, challenging text every day, Reading Recovery teachers also make extensive use of the technique of rereading texts.

Beginning readers tend to read slowly because they are encountering and coordinating many new understandings, such as new language ("book language"), the directional movement of print and word recognition, as well as new concepts and ideas (Lomax & McGee, 1987). When children are first learning to match up all of this information, reading slows down. We would not expect children who are just beginning to gain control of one-to-one matching and using visual information to read rapidly. But when control is established, teachers encourage flexibility, which means "to vary the speed of reading to suit the difficulty of the text." (Clay, 1993b, p. 52).

Teachers select texts carefully to encourage fluency. For example, previously read texts may be selected because the language will "move the reader forward." While children are reading, teachers use language like "Can you read this quickly?" or "Put them all together so that it sounds like talking" (Clay, 1993b, p. 52).

Specific techniques are also used such as masking the text and asking the child to read a phrase all at once, sliding a card underneath the text to discourage finger pointing and word by

[5]A detailed study of Reading Recovery lessons indicated that an average of 60.2% of time was spent reading continuous text (Pinnell, Lyons, DeFord, Bryk & Seltzer, 1994).

word reading, sliding a card over the text to force the eyes ahead, or calling attention to the punctuation. The cut-up sentence, too, can be arranged to teach the child how to read in phrases.

According to Clay (1993b), "Fluent reading will arise from teacher attention to the role of oral language, and thinking and meaning, and increasing experience with the visual information in print, and practice in orchestrating complex processing on just-difficult-enough texts...It has quite as much to do with looking as it has to do with language." (p. 53)

Principle 7: Comprehension: Teach students to construct meaning from print.

The goal of all reading instruction is the comprehension of written language. "The ultimate goal of reading instruction is to enable children to understand what they read. Again, the development of phoneme awareness, decoding skills, and the ability to read words fluently and automatically are NECESSARY but NOT SUFFICIENT for the construction of meaning from text" (Lyon, April 28, 1998, p. 6). Reading comprehension is an active process in which the reader and print interact. The reader is recognizing words quickly and automatically and using this skill in combination with other linguistic knowledge.

According to Pressley (1998), "Clay (1991) argues for teaching children to attend carefully to words, analyzing the words into parts that can be sounded out, but also emphasizes that the decodings that result should be cross-checked with other information (i.e., syntactic and semantic-contextual cues) to determine whether the word as decoded makes sense" (p. 177-178).

During reading, the brain is making amazing connections. Comprehension is the outcome of the reader's orchestration of many different kinds of information. Instruction in intervention programs must assure that students read and comprehend connected text. Many students will need support in order to orchestrate the complex behaviors needed. Lyon & Moats (1997) advise:

> It is naive to expect that children with reading difficulties who eventually master phonological and phonics concepts will automatically transfer these concepts when attempting to read connected text. Instead, systematic instruction that links reading skills to foster the development of componential skills and their relationship to one another, and the development of fluency, should increase the probability that a youngster with reading difficulties will construct meaning from text. (p. 582)

Comprehension in Reading Recovery

The issues specific to the generalization of componential reading skills to the development of reading fluency and reading comprehension is addressed in the context of Reading Recovery lessons. Teachers work toward helping the child develop a self-extending system (Clay, 1993b):

> The child:
>
> - *monitors* his own reading and writing
> - *searches* for cues in word sequences, in meaning, in letter sequences
> - *discovers* new things for himself

- *cross-checks* one source of cues with another
- *repeats* as if to *confirm* his reading or writing so far
- *self-corrects* taking the initiative for making cues match or getting words right
- *solves* new words by these means. (p. 43)

All of the strategies described above, including word analysis, are directed toward the search for meaning. In Reading Recovery lessons there is a strong emphasis on teaching the relationship of skills to one another and to real reading and writing. Children are taught that what they know in one place can help them elsewhere. They are shown how analogies work to help them in figuring out new words and that those words must "fit" with what would make sense. For example, language like: "Does it make sense?" or "Can we say it that way?" might follow word solving while reading text.

The story introduction is especially directed toward giving the child an orientation to the story that will support the continual construction of meaning while he engages in the problem solving necessary to decode words. The orientation also prompts the child to use what he knows to meet the challenges of the new text. The idea of the introduction, early in the child's program, is to create explicit understanding of how to use what the child has learned and to ensure successful processing. As the child becomes more competent in reading, the introduction moves toward more of a summary overview that supports meaning but leaves much work for the child to do (Clay, 1993b, p. 17).

Sometimes people ask whether Reading Recovery teachers have a list of prescribed "comprehension questions" to ask the child after the reading of each story. The answer is that there are no such lists of questions. Reading Recovery teachers are working

individually with children that they know very well. Meaningful conversation surrounds every component of the lesson. In the introduction of a book, during reading, and after a book is read, teachers are constantly searching for evidence in the child's behavior, especially his language, of comprehension. Detailed analysis of reading behavior provides concrete evidence not only of word solving abilities but of the fact that the child is constructing meaning. Meaning is always paramount in Reading Recovery lessons; if there is any doubt that the child understands, the teacher can always ask "on the spot" questions to check.

Principle 8: Balanced, Structured Approach: Provide a balanced approach so that literacy develops along a broad front and students can apply skills in reading and writing.

There is evidence that a balance of word identification strategy instruction with reading continuous text leads to accelerated progress for poor readers. Also, combining reading and writing, so that learning in one area supports the other, has been shown to be effective in providing for accelerated progress (Adams, 1990). Fletcher & Lyon (1998) believe that the most credible solution to reducing reading failure lies in a balance between meaning oriented instruction and word recognition instruction through teaching phonological awareness, decoding skills, and other processes.

In the article "Critical Conceptual and Methodological Considerations in Reading Intervention Research" by Lyon & Moats (1997), the authors say that an important dimension along which reading interventions are distributed is the "extent to which all components of a complete, balanced approach are included in each lesson, regardless of the student's reading level" (p. 581). They criticize intervention studies that "overemphasize one component to the detriment of others" (p. 581) and

use as an example the emphasis placed on phonological awareness and decoding with insufficient attention toward applying these skills in text reading (p. 581). Balance is related to the transfer of skills from one area to another, especially "explicitly integrating learned phonological concepts into word- and text-reading tasks." (p. 581).

Balance is desirable; however, balance does not simply mean a "little of this and a little of that." Structure, organization, and teaching must be part of the equation. Lyon & Moats (1997) indicate that the "explicitness and detail with which spoken and written language structures are taught" is an important dimension (p. 581). They go on to define explicit teaching of language structure as characterized by the following:

> a. deliberate organization of lesson format and content,
> b. calibration of concept difficulty along both linguistic and developmental continua,
> c. corrective feedback designed to foster linguistic insight and self-reliance in the student,
> d. careful choice of reading material for practice, and
> e. a conscious interplay between spoken and written language during teaching. (p. 581)

Longitudinal research provides strong evidence in support of a balanced approach, not only for "safety net" programs like Reading Recovery (Rowe, 1995).

Balance and Organization in Reading Recovery

I began this paper by stressing the comprehensive and integrated nature of the instructional actions incorporated in Reading Recovery. I have listed and referred to specific teaching procedures and lesson elements, but it must be noted that it is the

combination of components that is the key to student progress. Across the Reading Recovery lesson, students learn "how to learn" all aspects of the reading process. As they work to understand the texts they read, they are learning that reading makes sense. They learn how to think while reading. As they work to solve words, they learn how words work so that they can apply strategies as they read other texts. They learn to use what they know to get to what they do not yet know. The powerful strategies that make up a reading process can not be developed without practice in many different ways. Reading Recovery teachers intentionally work to be sure that students make connections across the components of the lesson framework. A key concept in Reading Recovery is that *"Every new thing learned should be revised in several other activities."* (Clay, 1993b, p. 25). That concept makes for flexibility in learning. It is the balance of activities, the opportunity to use skills in many ways, that provides for acceleration.

Reading Recovery consists of an interrelated set of learning experiences within which teachers help children:

- develop systems for learning all aspects of literacy—that is, "learn how to learn;"
- attend to needed details such as letters, sounds, and words;
- use skills while reading and writing continuous text; and,
- engage in strategic processing through massive opportunities to read continuous text.

If one considers the organization of Reading Recovery lessons, each of the preceding criteria (Lyon & Moats, 1997) are met. Lesson format and content are deliberately organized in a format that provides a balanced approach to instruction, including attention to reading familiar and novel texts, writing a message of importance to the child, phonemic awareness, letter-sound correspondence, basic sight words, fluency, and teaching for strategic processing.

Calibration of concept difficulty is built into each lesson component because the expert teacher makes appropriate teaching decisions based on the minute-by-minute observations of the child. Corrective feedback is provided throughout the lesson such that children gain competence and independence as readers and writers during each lesson. Reading Recovery teachers spend much time selecting the materials that will both sustain children's developing understandings about literacy and take them to a new level of understanding. Finally, teachers think carefully about what they say and how they say it in order to assure a conscious interplay between spoken and written language during teaching. They use consistent language to help students gain control over reading and writing; and they provide whatever scaffolds are necessary to assist young learners in becoming literate.

Reading Recovery lessons provide balance (as previously indicated), and decoding or phonological skills are taught in order for the child to either read or write words in real messages; these things are not taught as an end in themselves. The lack of transfer to gains made in textual reading accuracy and fluency found in some interventions is avoided in Reading Recovery because the instruction takes place around actual reading and writing. Daily gains are made in terms of the ability to read gradually more and more difficult texts and write more complex messages. Almost all instruction in Reading Recovery lessons centers on "explicitly integrating learned phonological concepts into word- and text-reading tasks" (consistent with Lyon & Moats, 1997, p. 581).

The Reading Recovery lesson is a highly structured, intensive teaching and learning experience. Reading Recovery lessons have been criticized for their structure and for the explicit nature of the teaching (Barnes, 1996-97; Dudley-Marling &

Murphy, 1997). Reading Recovery teachers (Browne, Fitts, McLaughlin, McNamara, & Williams, 1996) claim that Reading Recovery lessons are part of the balance of the entire literacy education that the child is receiving and that, working one-on-one with students who are confused, it is easier to attend specifically to what the child needs to know.

> According to Pressley, Wharton-McDonald, & Hampston (1998): Those who criticize the structure of Reading Recovery lessons miss one of the most striking features of Reading Recovery lessons, which we have observed personally: Reading Recovery students seem to get a charge out of the lessons. Although it may be hard for some whole language enthusiasts to accept that there can be joy for children in anything except immersion in literature and unstructured and undemanding opportunities to compose, experiencing success in Reading Recovery lessons seems to be a source of joy for students. (p. 180)

Principle 9: Early Intervention: Intervene early to undercut reading failure.

Consider this statement from the Committee on the Prevention of Reading Difficulties in Young Children: "Consistent with the view that reading develops under the influence of many early experiences, it is the committee's judgment that deferring intervention until third or fourth grade should be avoided at all costs" (Snow, Burns, & Griffin, 1999, p. 326). It seems clear that we must intervene early to start children on the road to competent literacy.

Early Intervention and Reading Recovery

Reading Recovery is specifically designed to accomplish the goal of undercutting reading failure. It is not a classroom program, nor is it aligned with any particular classroom program. It is an *early intervention* with one clear goal: "...to dramatically reduce the number of learners who have extreme difficulty with literacy learning and the cost of these learners to educational systems." (Quoted from Marie Clay's implementation visit to North Carolina, 1994). Reading Recovery is a relatively brief (12 to 20 weeks) safety net intervention. Children are entered into Reading Recovery at a critical time in their school careers (age six or during first grade).

The goal of Reading Recovery is to help children make accelerated progress, catch up with their first grade peers, and be able to profit from good, ongoing classroom instruction. It is a supplementary opportunity for children and is not intended to replace classroom instruction. "It is especially designed for the lowest achieving children. Acting as a safety net within a good instructional literacy program, Reading Recovery can be part of a strong, comprehensive approach to bring all students to literacy." (Askew, Fountas, Lyons, Pinnell, & Schmitt, 1998).

Principle 10: Individual Tutoring: Provide one-on-one assistance for the students who are having the most difficulty.

Working one-on-one with a child is one of the most effective forms of instruction (Slavin, 1989; Slavin, Karweit, & Madden, 1989). Tutoring allows the teacher to work from the child's strengths and to introduce material in a way that is more effective. Moreover, the tutoring must be provided by an expert teacher, one who has demonstrated the ability to teach children who are having difficulty. The Committee on the Prevention of

53

Reading Difficulties in Young Children (Snow, Burns, & Griffin, 1999) found no evidence that volunteers can deal effectively with children who have serious reading problems. They say: "Although volunteer tutors can provide valuable practice and motivational support for children learning to read, they should not be expected either to provide primary reading instruction or to instruct children with serious reading problems" (p. 12).

Individual Tutoring and Reading Recovery

Reading Recovery is defined as one-on-one tutoring. It is not a classroom program; it is not a small group program. The procedures require detailed adjustment to the specific strengths of individuals, a process that is essential for children who are confused about literacy. Quite simply, if the instruction is not one-on-one, it is not Reading Recovery (*Standards and Guidelines of the Reading Recovery Council of North America*, 1998). Clay (1993b) states:

> A programme for a child having difficulty learning to read should be based on a detailed observation of that child as a reader and writer, with particular attention to what the child can do. The programme will work out of these strengths and not waste time teaching anything already known. (p. 7)

Individual tutoring is a critical factor in helping the child to make accelerated progress. It is not enough for a young child to make progress - even satisfactory progress. He must catch up with his first grade peers before he falls farther and farther behind. It is true that good classroom instruction will be needed each year for these vulnerable children to continue to make progress; but if they fall far behind in the first and second years of schooling, their chances of success are greatly reduced.

Individual tutoring does not guarantee accelerated progress. Lessons must be *daily* for each child so that momentum will not be lost. The child must have enough tutoring (that is, stay in the school for 12 to 20 weeks) to gain momentum and relate understandings so that progress is accelerated. Progress must be carefully monitored, with problem-solving help for the teacher, through a high quality implementation (Askew, *et. al.*, 1998; Pinnell, 1997).

Above all, the teacher must be highly skilled at recognizing particular literacy learning difficulties and selecting appropriate Reading Recovery procedures. The teacher must work skillfully and powerfully with the child's responses in order to maximize the learning each day.

Teachers selected for Reading Recovery are experienced primary teachers who make the commitment to an initial year of training as well as ongoing professional development. Reading Recovery teachers undergo a full year of training. It takes time and support for teachers to change their practices and select with ease, on the run, the appropriate next move in any child's lesson designed to achieve maximum progress in a minimum of time. By the end of the training year, teachers are well versed in procedures that have been found to benefit beginning readers. Teachers have internalized ways of observing children as they read and write in order to inform further instruction.

In the United States alone, Reading Recovery has served over half a million children since its pilot year in 1984-85. Eighty-three percent of the children who had a full Reading Recovery program developed independent reading and writing strategies. According to the latest *Executive Summary* (The Ohio State University and RRCNA, 1998), 333,387 successful replications of the program have been carried out in the United States. This

means that 333,387 children most at risk learned to be independent, fluent readers of real books. No other intervention has demonstrated this consistency and effectiveness. "Evidence firmly supports the conclusion that Reading Recovery does bring the learning of many children up to that of their average-achieving peers" (Shanahan & Barr, 1995). To Reading Recovery teachers, the goal of Reading Recovery is to place children within the average band of classroom.

Summary: A Complex Process, A Complex Solution

The purpose of this document has been to review selected research recommended by NICHD as a sound basis for designing literacy programs and particular intervention programs to help struggling readers. The following chart summarizes ten principles that this research suggests are essential for intervention programs. Supporting research, as well as components and teaching procedures characteristic of Reading Recovery, are listed for each of the ten principles (see Table 2).

Table 2. Summary Chart: Research and Reading Recovery

Instructional Goal	Supporting Research	How Reading Recovery Addresses the Goal in One-on-One Lessons
1) Phonological Awareness	Adams (1990) Ball & Blachman (1991) Blachman (1984) Bradley & Bryant (1983) Bryant, MacLean, Bradley, & Crossland (1990) Bryant, Bradley, Camlean, & Crossland (1989) Fox & Routh (1980) Griffith & Olson (1992) Juel (1991) Liberman, Shankweiler, Fischer, & Carter (1974) Lomax & McGee (1987) Lundberg, Frost, & Petersen (1988) Perfetti, Beck, Bell, & Hughes (1987) Snow, Burns, & Griffin (1998) Treiman & Baron (1981) Tunmer, Herriman & Nesdale (1988) Vellutino & Denckla (1991) Vellutino & Scanlon (1987)	• Assessing phonemic awareness using Hearing and Recording the Sounds in Words. • Using "sound boxes" to train children in phonemic awareness. • Helping children hear sounds in sequence. • Helping children connect words by how they sound in writing.
2) Visual Perception of Letters	Adams (1990) Liberman, Shankweiler, & Liberman (1985) Pressley (1998) Snow, Burns, & Griffin (1998) Stanovich (1985) Venezky (1965) Walsh, Price, & Gillingham (1988)	• Assessing letter recognition with the Letter Identification test and Concepts About Print test. • Using magnetic letters to learn to look at and recognize letters. • Writing letters with explicit verbal instructions. • Making personal alphabet books. • Using letters and clusters and looking carefully across words, picking up letter-sound relationships. • Using letters to monitor reading.

3) Word Recognition	Adams (1990) Biemiller (1970) Blanchard (1980) Calfee & Piontkowsky (1981) Ceprano (1981) Chall 1989) Ehri (1991) Ehri & Wilce (1985) Herman (1985) Juel (1988) Juel, Griffith, & Gough (1986) Lesgold, Resnick & Hammond (1985) Snow, Burns, & Griffin (1998) Stanovich (1985, 1991) Vellutino & Denckla (1991)	• Assessing word knowledge with the word tests • Building a repertoire of known words in reading. • Building a known repertoire of more than 40 different words in writing. • Reading known and new words daily within texts. • Writing known and new words daily in texts. • Making and remaking words with magnetic letters. • Taking words to fluent production in writing. • Making words using phonemic strategies. • Making new words by analogy with known words.
4) Phonics/ Decoding Skills	Adams (1990) Anderson, Hiebert, Scott, & Wilkinson (1984) Barr & Dreeben (1983) Bradley & Bryant (1983) Daneman (1991) Ehri (1991) Gough & Hillinger (1980) Gough & Juel (1991) Hohn & Ehri (1983) Johnson & Bauman (1984) Juel (1991) Juel, Griffith, & Gough (1985) Mason (1980) Pressley (1998) Snow, Burns, & Griffin (1998) Vellutino & Denckla (1991) Trieman (1992)	• Assessing phonics/ decoding skills with the Word Test, Hearing and Recording Sounds in Words, and Text Reading (error analysis) • Making and breaking words with magnetic letters. • Using magnetic letters to build words using parts. • Taking words apart while reading. • Constructing words while writing. • Conducting left-to-right analyses of words.

5) Phonics/ Structural Analysis	Adams (1990) Allington & Fleming (1978) Anderson, Hiebert, Scott, & Wilkinson (1984) Barr & Dreeben (1983) Daneman (1991) Ehri (1991) Ehri & McCormick (1998) Gough (1983) Gough & Hillinger (1980) Johnson & Baumann (1984) Juel (1991) Mason (1980) Pressley (1998) Snow, Burns, & Griffin (1998) Stanovich (1991; 1993-94) Stanovich & West (1981) Treiman (1992) Vellutino & Denckla (1991)	• Assessing phonics/ decoding skills daily on error analysis in reading. • Making and breaking words with magnetic letters—more sophisticated analyses. • Using magnetic letters to build words, including substituting consonants and vowels, adding endings and prefixes, and other analyses. • Using the white board during reading to explicitly teach word analysis. • Analyzing words on a practice page while writing messages and stories.
6) Fluency and Automaticity	Schreiber (1991) Snow, Burns, & Griffin (1998) Snyder & Traver (1987) Stahl, Heubach, & Crammond (1997) Torgeson (1986) Torgeson, Wagner, & Rashotte (1997) Zutell & Rasinski (1991)	• Rereading familiar texts to gain ease and fluency. • Hearing explicit demonstrations of phrasing in fluent reading. • Using specific prompting for phrasing in fluent reading. • Using techniques such as masking the text to make the eyes move ahead. • Encouraging flexibility once control is established.
7) Comprehension	Lyon (1998) Lyon & Moats (1997) Pressley (1998) Snow, Burns, & Griffin (1998)	• Emphasizing meaning consistently and strongly. • Using language and learning conversations to support and assess comprehension.

		• Prompting explicitly to help the child search for and use meaning during reading. • Prompting and supporting children's construction of meaning during reading and writing.
8) Balanced, Structured Approach	Adams (1990) Fletcher & Lyon (1998) Lyon & Moats (1997) Pressley, Wharton-McDonald & Rowe (1995)	• Providing daily, highly organized, structured lessons. • Daily taking and analyzing text reading to monitor the formation of a flexible use of different approaches to problems. • Providing lessons with a range of reading, writing and word study components. • Making connections between lesson components. • Explicitly prompting students to use skills across lesson components.
9) Early Intervention	Snow, Burns, & Griffin (1998) Torgeson (1998) Pinnell (1997)	• Assessing students for literacy understandings after one year of school. • Intervening early to prevent reading difficulties. • Turning the problems around in the minimum time.
10) Individual Tutoring by Skilled Teacher	Slavin (1989) Slavin, Karweit, & Madden (1989) Snow, Burns, & Griffin (1999) Pinnell (1997)	• Providing one-on-one instruction from certified teacher. • Providing intensive, high quality, ongoing teacher training.

The findings of all research must be interpreted with caution; always more investigation is needed. Lyon cautions against simplistic interpretations:

> The tendency to interpret the NICHD research, often in the name of "science," as supporting phonics instruction as a panacea for literacy problems is particularly disturbing. For example, materials distributed by the National Right to Read Foundation as well as a report that purports to summarize NICHD research (Center for the Future of Teaching and Learning, 1996 [Grossen, B.]), exaggerate the findings of these studies, especially the extent to which the intervention results support the instructional recommendations in the reports. NICHD researchers have used a variety of phonics techniques, often as part of a comprehensive approach to intervention. No NICHD data support a single approach to phonics, much less a specific sequence, number, or set of rules that must be learned, or an essential role for decontextualized drills. We lament the reliance on ideology and invective as opposed to the more difficult task of completing the research that will help educators and policy makers implement effective reading practices. No simple, single message can be obtained from the NICHD research (Fletcher & Lyon, 1998).

It is the responsibility of all literacy educators to continue to investigate promising approaches and their effects for different learners. After all, the children who are having extreme difficulty exhibit great diversity among themselves. Reading is a complex process, requiring the integration of many kinds of information. Children who are having extreme difficulty require skilled teaching based on detailed information about the strate-

gies they *do know* and providing the individual attention and teacher time needed to help them integrate many behaviors.

According to Clay: "Teachers must be observant of individuals' responses and of individual progress. They must be aware of the alternate learning sequences which can lead to progress, and they must know when progress is not occurring" (Clay, 1993b, p. 6). The leaders of NICHD have recognized the complexity of learning to read as well as the challenge to provide robust instructional approaches that will have maximum potential to help children.

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